National Institute of Environmental Health Sciences

Seasonality of cholera from 1974 to 2005: A review of global patterns

Author(s): Emch M, Feldacker C, Islam MS, Ali M
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Abstract:

BACKGROUND: The seasonality of cholera is described in various study areas throughout the world. However, no study examines how temporal cycles of the disease vary around the world or reviews its hypothesized causes. This paper reviews the literature on the seasonality of cholera and describes its temporal cycles by compiling and analyzing 32 years of global cholera data. This paper also provides a detailed literature review on regional patterns and environmental and climatic drivers of cholera patterns. DATA, METHODS, and RESULTS: Cholera data are compiled from 1974 to 2005 from the World Health Organization Weekly Epidemiological Reports, a database that includes all reported cholera cases in 140 countries. The data are analyzed to measure whether season, latitude, and their interaction are significantly associated with the country-level number of outbreaks in each of the 12 preceding months using separate negative binomial regression models for northern, southern, and combined hemispheres. Likelihood ratios tests are used to determine the model of best fit. The results suggest that cholera outbreaks demonstrate seasonal patterns in higher absolute latitudes, but closer to the equator, cholera outbreaks do not follow a clear seasonal pattern. CONCLUSION: The findings suggest that environmental and climatic factors partially control the temporal variability of cholera. These results also indirectly contribute to the growing debate about the effects of climate change and global warming. As climate change threatens to increase global temperature, resulting rises in sea levels and temperatures may influence the temporal fluctuations of cholera, potentially increasing the frequency and duration of cholera outbreaks.

Source: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2467415

Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Meteorological Factors, Solar Radiation, Other Exposure

Other Exposure: cloud cover

Geographic Feature:

resource focuses on specific type of geography

None or Unspecified

Geographic Location:

resource focuses on specific location

Global or Unspecified

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Infectious Disease

Infectious Disease: Foodborne/Waterborne Disease

Foodborne/Waterborne Disease: Cholera

Mitigation/Adaptation: ☑

mitigation or adaptation strategy is a focus of resource

Adaptation

Model/Methodology: ☑

type of model used or methodology development is a focus of resource

Outcome Change Prediction

Population of Concern: A focus of content

Population of Concern: ☑

populations at particular risk or vulnerability to climate change impacts

Low Socioeconomic Status

Resource Type: ☑

format or standard characteristic of resource

Research Article

Timescale: ☑

time period studied

Time Scale Unspecified

Vulnerability/Impact Assessment: ☑

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content